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Indian Standard

BORING BARS FOR INDEXABLE INSERTS — DIMENSIONS

ICS 25.100.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

February 2001

Price Group 3

Single Point Cutting Tools, Carbide Tips and Indexable Inserts Sectional Committee, BP 12

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 5609 : 1998 'Boring bars for indexable inserts — Dimensions' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendations of the Single Point Cutting Tools, Carbide Tips and Indexable Inserts Sectional Committee and approval of the Basic and Production Engineering Division Council .

The text of the ISO Standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker in the International Standard while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In the adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 3002-1 : 1982 Basic quantities in cutting and grinding — Part 1 : Geometry of the active part of cutting tools — General terms, reference systems, tool and working angles, chip breakers	IS 11522 (Part 1) : 1998 Basic quantities in cutting and grinding : Part 1 Geometry of the active part of cutting tools — General terms, reference systems, tools and working angles, chip breakers	Identical
ISO 6261 :1995 Boring bars (tool holders with cylindrical shank) for indexable inserts — Designation	IS 14864 : 2000 Boring bars (tool holders with cylindrical shank) for indexable inserts — Designation	do

Indian Standard
BORING BARS FOR INDEXABLE INSERTS — DIMENSIONS

1 Scope

This International Standard specifies the general dimensions of solid steel boring bars with cylindrical shank for indexable inserts, and specifies preferred boring bars (see clause 5).

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreement based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3002-1:1982, *Basic quantities in cutting and grinding — Part 1 : Geometry of the active part of cutting tools — General terms, reference systems, tool and working angles, chip breakers.*

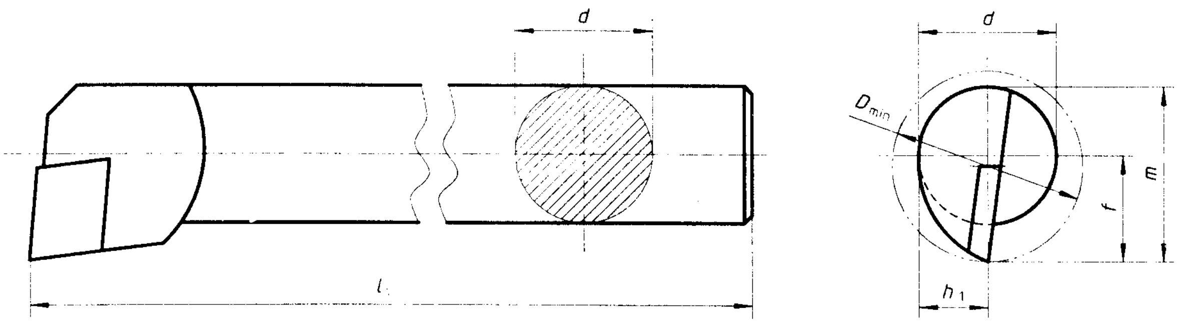
3 Remark

The designation system for boring bars is given in ISO 6261.

4 Dimensions

4.1 General dimensions

See figure 1 and table 1.



$$h_1 = \frac{d}{2}$$

$$m = f + \frac{d}{2}$$

Figure 1

Table 1

Dimensions in millimetres

Shank diameter, d g7		08	10	12	16	20	25	32	40	50	60
Shank length, l_1 k16	preferred series	80	100	125	150	180	200	250	300	350	400
	secondary series	100	125	150	200	250	300	350	400	450	500
Dimension, $f\ {}^{0}_{-0.25}$		6	7	9	11	13	17	22	27	35	43
Minimum diameter of bore, D_{min}		11	13	16	20	25	32	40	50	63	80
NOTE — One or more flats on the shank may be provided at the manufacturer's option.											

4.2 Identification of dimensions l_1 and f

4.2.1 The length dimension l_1 is the distance from the specified point K (see figures 2 to 5) to the end of the shank.

Dimension f is the distance between the specified point K and the axis of the boring bar.

The values of both l_1 and f, as specified in 4.1, are given for boring bars equipped with master insert having corner radii in accordance with 4.2.3.

4.2.2 The specified point K is defined as follows:

Consider planes P_f (assumed working plane) and P_s (tool cutting edge plane) according to ISO 3002-1 for a selected point on the major cutting edge (for example point of tangency of major cutting edge with inscribed circle).

a) For $\kappa_r \leq 90°$, point K is defined as the intersection of plane P_s, a plane parallel to plane P_f tangent to the corner radius and a plane containing the tool face A_γ (see figures 2 and 3).

b) For $\kappa_r > 90°$, point K is defined as the intersection of a plane parallel to plane P_f, tangent to the corner radius, a plane perpendicular to plane P_f tangent to the corner radius and a plane containing the tool face A_γ (see figures 4 and 5).

4.2.3 The corner radius r_ε of the master inserts used for the definition of dimensions l_1 and f is a function of the diameter of the inscribed circle of the insert, as indicated in table 2.

Table 2

Dimensions in millimetres

Diameter of the inscribed circle	6,35	7,94	9,525	12,7	15,875	19,05
Corner radius r_ε (nominal)	0,4		0,8		1,2	

4.2.4 Boring bars may be equipped with inserts of sizes as specified in clause 5 and any corner radius r_ε.

For corner radii r_ε other than those specified in 4.2.3, dimensions l_1 and f shall be corrected by using the values x and y (see figures 2 to 5), which are the distances from the specified point K to the theoretical corner T.

The new dimensions l_1 and f are found from the differences between x and y corresponding to the corner radius according to 4.2.3, and x and y corresponding to the real corner radius.

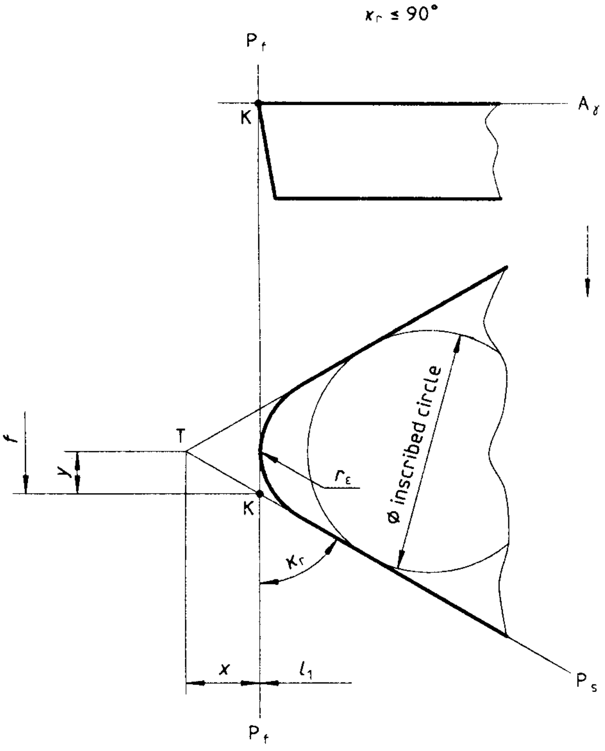


Figure 2

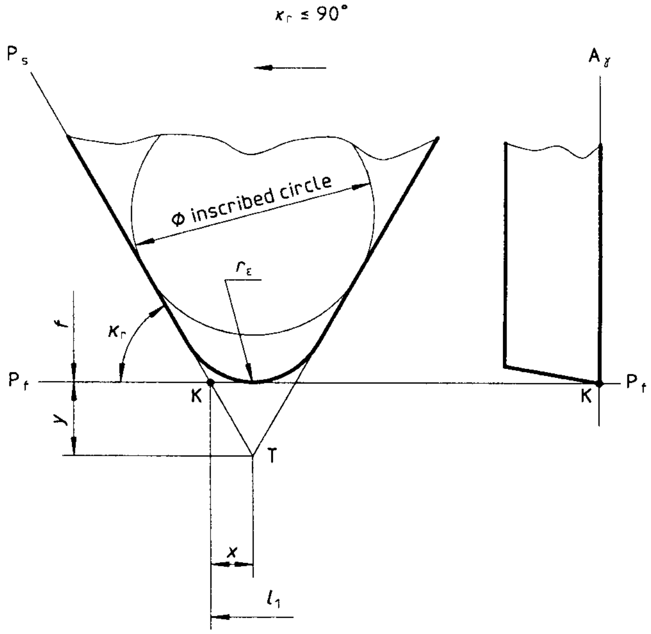


Figure 3

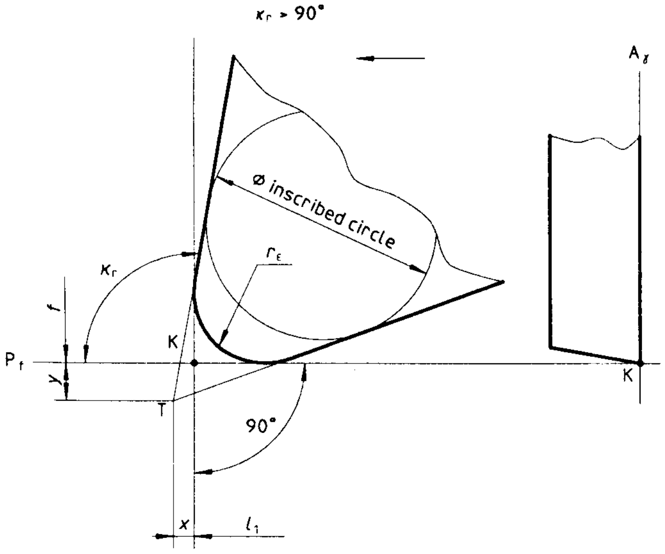


Figure 4

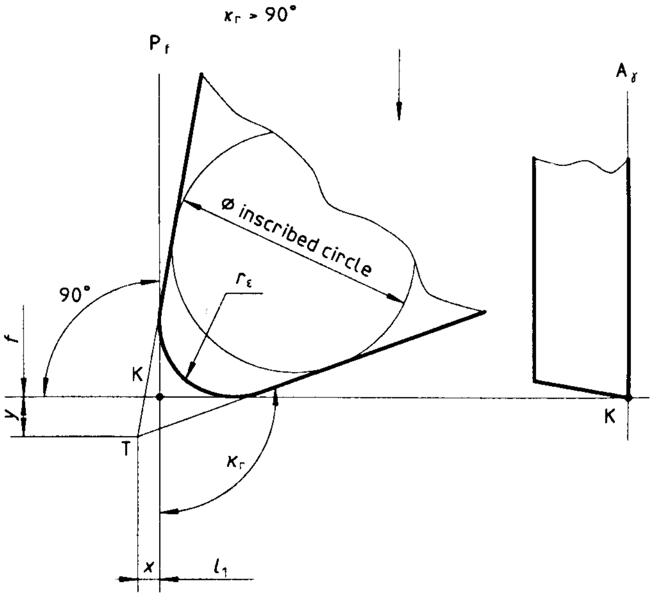


Figure 5

5 Preferred boring bars

See table 3.

Table 3

Dimensions in millimetres

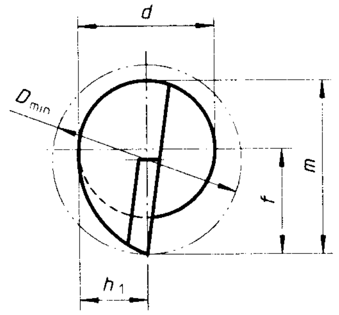
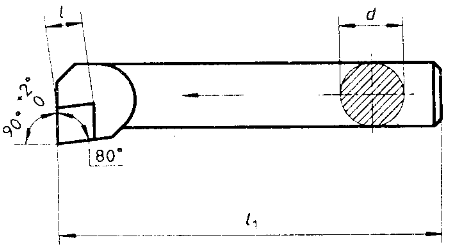
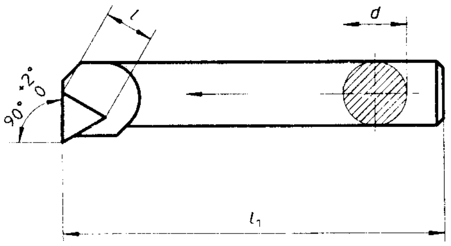
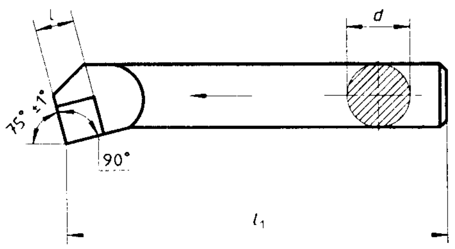
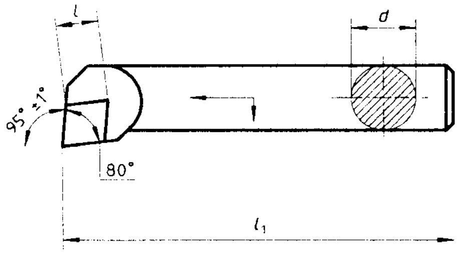
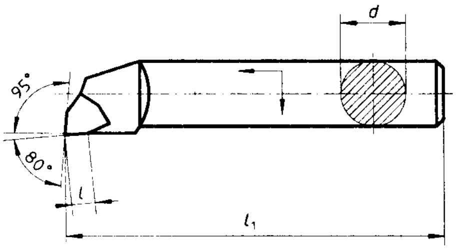
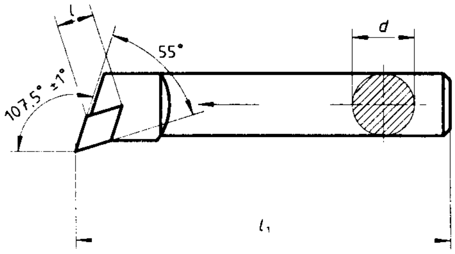
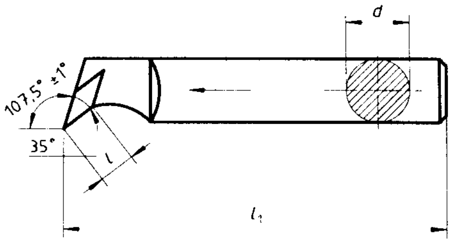
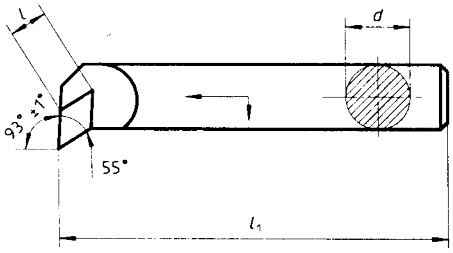
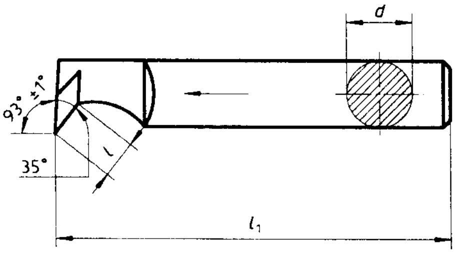
Style												
		d g7	08	10	12	16	20	25	32	40	50	60
		l_1 k16	80	100	125	150	180	200	250	300	350	400
		$f\,{}^{0}_{-0.25}$	6	7	9	11	13	17	22	27	35	43
		D_{min}	11	13	16	20	25	32	40	50	63	80
F		l (designation)	06	06	—	—	—	—	—	—	—	—
		l (designation)	—	11	11	11	11/16	16	16	16/22	22	22/27
K		l (designation)	—	—	—	09	09	09/12	12	12/15	15/19	15/19

Table 3 (*continued*)

L		*l* (designation)	06	06	06	09	09	12	12	12	16/19	16/19
		*l* for inserts style W (designation)	L3	04	04	04/06	06	06/08	06/08	06/08	—	—
Q		*l* (designation)	—	—	07	07	11	11/15	11/15	15	15	—
		*l* (designation)	—	—	—	11	11/13	13/16	16	16	—	—
U		*l* (designation)	—	—	07	07	11/15	11/15	15	15	15/19	15/19
		*l* (designation)	—	—	—	11	11/13	13	16	—	—	—

Annex A
(informative)

Bibliography

[1] ISO 883:1985, *Indexable hardmetal (carbide) inserts with rounded corners, without fixing hole — Dimensions.*

[2] ISO 3364:1997, *Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions.*

[3] ISO 6261:1995, *Bring bars (tool holders with cylindrical shank) for indexable inserts — Designation.*

[4] ISO 6987:1998, *Indexable hard material inserts with rounded corners, with partly cylindrical fixing hole — Dimensions.*

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